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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,515	06/25/2003	Paul Petrus	15685P213	5235

45222 7590 11/23/2005

ARRAYCOMM/BLAKELY
12400 WILSHIRE BLVD
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EXAMINER	
AJIBADE AKONAI, OLUMIDE	

ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,515	PETRUS, PAUL	
	Examiner	Art Unit	
	Olumide T. Ajibade-Akonai	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☒ Claim(s) *15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 and 3 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 15 is objected to because of the following informalities: Amended claim 15 is presented as the original claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Senadji et al "*Estimation of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** in view of **Bringby et al (6,285883)**.

Regarding **claim 1**, Senadji et al discloses a method for facilitating handover between base stations in a communication system comprising: averaging measured signal strength associated with transmission from a first base station (BS2, see fig. 2, p.1772) over a long interval to obtain a long term average (averaging the signal strength of signals sent from BS2 to MS, see fig. 2, p.1772, paragraph 2), averaging measured signal strength associated with

transmission from the first base station (BS1, see fig. 2, p.1772) over a short interval to obtain a short term average (averaging the signal strength of signals sent from BS1 to MS, see fig. 2, p.1772, paragraph 2); subtracting the long term average from the short term average to obtain an intermediate result (calculated difference between the signal strengths given by equations 1, 2 and 3, see p.1772, figs. 2 and 3, paragraphs 2-3) and; determining a standard deviation of the intermediate result (calculated difference z_k is determined to have a standard deviation, see p.1773, paragraph 1).

Senadji et al fails to disclose determining, based on the standard deviation, signal strength fluctuation associated with transmission from a first base station to obtain a first result, determining signal strength fluctuation associated with transmission from a second base station to obtain a second result, and combining the first and second results to obtain a hysteresis factor for handover.

In the same field of endeavor, Bringby et al discloses determining, based on the standard deviation (standard deviation, see col. 4, lines 50-67), signal strength fluctuation associated with transmission from a first base station to obtain a first result (mobile station MS measures a received signal strength within the originating cell of the mobile station MS, and the fluctuation of the signal is calculated, see col. 2, lines 56-65), determining signal strength fluctuation associated with transmission from a second base station to obtain a second result (the signal strength of transmitted signals of at least one base station in neighboring cell is measured and the signal fluctuation is also

calculated, see col. 2, lines 56-65), and combining the first and second results to obtain a hysteresis factor for handover (hysteresis value is calculated based on the fluctuation measure, see col. 2, lines 64-65).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Bringby et al with Senadji et al for the benefit of reducing the rate of oscillating handoffs.

Regarding **claim 2**, as applied to claim 1, the combination of Senadji et al and Bringby et al disclose the claimed invention.

Senadji et al fails to disclose wherein determining signal strength fluctuation associated with transmission from the second base station comprises computing standard deviation of received signal strength associated with the transmission.

Bringby et al, however, further discloses wherein determining signal strength fluctuation associated with transmission from the second base (see col. 2, lines 57-61) station comprises computing standard deviation of received signal strength associated with the transmission (fluctuation is calculated by applying standard deviation to at least one of the measured received signal strengths, see col. 2, lines 60-63).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Senadji et al and Bringby et al for the benefit of calculating hysteresis value.

Regarding **claim 3**, as applied to claim 1, Senadji et al further discloses wherein computing standard deviation comprises: averaging measured signal strength associated with transmission from the second base station (see col. 2, lines 57-61) over a long interval to obtain a long term average (averaging the signal strength of signals sent form base station BS2 to MS, see fig. 2, p. 1772 paragraph 2), averaging measured signal strength associated with transmission from the second base station over a short interval to obtain a short term average (averaging the signal strength of signals sent form base station BS1 to MS, see fig. 2, p. 1772 paragraph 2), subtracting the long term average from the short term average to obtain a second intermediate result (calculated difference between the signal strengths given by equations 1, 2, and 3, see p. 2, fig. 2 and fig. 3 paragraphs 2-3), and determining standard deviation of the second intermediate result (calculated difference z_k is determined to have a standard deviation, see p. 1773, paragraph 1).

Regarding **claim 4**, as applied to claim 1, Senadji et al, as modified by Bringby et al discloses the claimed invention.

Senadji et al, however, fails to disclose wherein the standard deviation is recursively determined over a span of transmission samples from the first base station.

Bringby et al, however, further discloses wherein the standard deviation is recursively determined over a span of transmission samples from the first base station (on the downlink signal strength measurements are made by the serving BS on data transmitted in any of the times slots TS1 and TS4 at

regular intervals, and a measure of the fluctuation of the received strength of the signal is measured by applying standard deviation, see fig. 4, col. 2, lines 61-65, and col. 4, lines 1-7).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Senadji et al and Bringby et al for the benefit of calculating the hysteresis value

Regarding **claim 7**, as applied to claim 1, Senadji et al, as modified by Bringby et al discloses the claimed invention. In addition, Senadji et al inherently teaches wherein the intermediate result (Z_k, see p. 1772, paragraph 2) is a function of a delay factor that depends on a first averaging window for the long term average and a second averaging window short term average (Z_k is computed from the average signal strengths y^1_k and y^2_k, hence the intermediate result is a function of a delay factor because averaging of the signals introduces a delay response, see p. 1772, paragraph 2-3).

Regarding **claim 8**, as applied to claim 7, the combination of Bringby et al and Senadji et al discloses the claimed invention. In addition, Senadji et al inherently teaches wherein the first and second averaging windows each have a fixed window length (the average of the received signals y^1_k and y^2_k are proportional to the average window length, therefore the fixed window length is D-d, and d which are the distances of BS1 and BS2 from MS, see fig. 2, p. 1772, paragraph 2).

5. Claims 5, 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Senadji et al *"Estimation of the Hysteresis Value for***

Handover Decision Algorithms using Bayes Criterion*"** in view of **Bringby et al (6,285883)** as applied to claim 4 above, and further in view of **Eiselt** "Limits on WDM Systems Due to Four-Wave Mixing: A statistical Approach***".

Regarding **claim 5**, as applied to claim 4, the combination of Senadji et al and Bringby et al as modified by discloses the claimed invention except wherein determining the standard deviation includes using a memory factor for weighting.

In the same field of endeavor, Eiselt inherently teaches wherein determining the standard deviation includes using a memory factor for weighting (standard deviation is obtained form the variance in equation 13 and the degeneracy factor of the mixing product, see p. 2262, paragraph 2, and p. 2264, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Eiselt into the system of Senadji et al and Bringby et al for the benefit of obtaining the desired mathematical result in the calculation of the standard deviation.

Regarding **claim 6**, as applied to claim 5, the combination of Bringby et al, Senadji et al, Bringby et al and Eiselt disclose the claimed invention.

Bringby et al and Senadji et al fail to disclose wherein the memory factor is selected to provide exponential weighing.

In the same field of endeavor, Eiselt inherently teaches wherein the memory factor is selected to provide exponential weighing (the degeneracy factor D_{pqr} can be obtained based on a given set p, q, r of parameters, see p. 2262, paragraph 2, and p. 2264, paragraph 3).

It would therefore have been obvious to one of ordinary skill in the art to further modify the teaching of Eiselt to achieve the desired mathematical result such as an exponential weighing factor.

Regarding **claim 11**, as applied to claim 6, the combination of Senadji et al, Bringby et al and Eiselt disclose the claimed invention.

The combination of Senadji et al, Bringby et al and Eiselt further discloses the limitation of claim 11, wherein Eiselt inherently teaches including a memory factor in the standard deviation (degeneracy factor D is varied depending on the dispersion, and D is included in the standard deviation equation see p. 2262, paragraph 2, p. 2264, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to further modify the teaching of Eiselt in order to achieve any desired mathematical result such as standard deviation.

6. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Senadji et al "*Estimation of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** in view of **Bringby et al (6,285,883)** as applied to claim 1 above, and further in view of **Bringby et al (6,175,745)**.

Regarding **claim 9**, as applied to claim 1, the combination of Senadji et al and Bringby et al (6,285,883) disclose the claimed invention except wherein combining the first and second results involves adding them together and then multiplying them by a scaling factor.

In the same field of endeavor, Bringby et al (6,175,745) teaches the use of a formula for determining pathloss which involve combining a first and second result and multiplying them by a scaling factor (cumulative pathloss is determined by adding the uplink and downlink pathloss and multiplying them by weighing values "a" and "b", see col. 5, lines 44-57), and since hysteresis is related to the pathloss, it would have been obvious to one of ordinary skill in the art use the teaching of Bringby et al (6,175,745) in the system of Senadji et al and Bringby et al (6,285,883) in order to achieve any desired mathematical result such as determining hysteresis or pathloss subject to system or circuit constraints.

Regarding **claim 12**, as applied to claim 9, the combination of Senadji et al, Bringby et al (6,285,883), and (6,175,754) discloses the claimed invention.

The combination of Senadji et al, Bringby et al (6,285,883) and Bringby et al (6,175,745) further discloses the limitation of claim 12, in which Bringby et al (6,175,744) inherently teaches wherein the scaling factor is in the range of 1.5 to 2 (the values of a and b used to calculate pathloss are chosen based on the accuracy of signal strength measurement made by the mobile and base station, and the estimate of pathloss required, see col. 5, lines 56-67, col. 6, lines 1-2, 25-32), and since hysteresis is related to the pathloss, it would have been obvious to one of ordinary skill in the art use the teaching of Bringby et al (6,175,745) in the system of Senadji and Bringby et al (6,285,883) in order to achieve any desired mathematical result such as determining hysteresis or pathloss subject to system or circuit constraints.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Senadji et al *"Estimation of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** in view of **Bringby et al (6,285883)** as applied to claim 1 above, and further in view of **Min-hua et al *"The mobile IP Handoff Between Hybrid Networks*"**.

Regarding **claim 10**, as applied to claim 1, the combination of Senadji et al and Bringby et al discloses the claimed invention except further comprising: calculating a handover cost function as a function of the hysteresis factor, selecting a base station based on the handover cost function.

In the same field of endeavor, Min-hua et al discloses calculating a handover cost function as a function of the hysteresis factor (the algorithm for mobile IP handoff includes adding the received signal strength RSS of the old base station to the hysteresis margin and comparing the results to the RSS of a new base station, see p. 267, col. 2, paragraph 2), selecting a base station based on the handover cost function (handoff is decided if $RSS_{new}>RSS_{old} + H$, see p. 267, col. 2, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Min-hua into the system of Senadji et al and Bringby et al for the benefit of reducing handoff delay, packet loss and the ping-pong effect.

8. Claims 13-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kim et al (20040053615)** in view of **Senadji et al *"Estimation***

***of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** and **Bringby et al (6,285883)**.

Regarding **claim 13**, Kim et al discloses machine-readable medium having stored thereon a set of machine-executable instructions (computer readable record medium storing instructions, see p. 2, [0029]-[0030]) that, when executed by a data-processing system, cause the system to perform a method for facilitating handover between base stations in a communication system (computer readable record medium storing instructions executing the method for handover based on frequencies received between neighbor based stations, see p. 2-3, [0029]-[0030]).

Kim et al fails to disclose the method comprising averaging measured signal strength associated with transmission from a first base station over a long interval to obtain a long term average; averaging measured signal strength associated with transmission from the first base station over a short interval to obtain a short term average; subtracting the long term average from the short term average to obtain an intermediate result; determining a standard deviation of the intermediate result.

In the same field of endeavor, Senadji et al discloses averaging measured signal strength associated with transmission from a first base station (BS2, see fig. 2, p.1772) over a long interval to obtain a long term average (averaging the signal strength of signals sent from BS2 to MS, see fig. 2, p.1772, paragraph 2), averaging measured signal strength associated with transmission from the first base station (BS1, see fig. 2, p.1772) over a short interval to obtain

a short term average (averaging the signal strength of signals sent from BS1 to MS, see fig. 2, p.1772, paragraph 2); subtracting the long term average from the short term average to obtain an intermediate result (calculated difference between the signal strengths given by equations 1, 2 and 3, see p.1772, figs. 2 and 3, paragraphs 2-3) and; determining a standard deviation of the intermediate result (calculated difference z_k is determined to have a standard deviation, see p.1773, paragraph 1).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Senadji et al with Kim et al for the benefit of calculating an optimal hysteresis value.

The combination of Kim et al and Senadji et al fail to disclose determining signal strength fluctuation associated with transmission from a first base station to obtain a first result, determining signal strength fluctuation associated with transmission from a second base station to obtain a second result, and combining the first and second results to obtain a hysteresis factor for handover.

In the same field of endeavor, Bringby et al discloses determining, based on the standard deviation, signal strength fluctuation associated with transmission from a first base station to obtain a first result (mobile station MS measures a received signal strength within the originating cell of the mobile station MS, and the fluctuation of the signal is calculated, see col. 2, lines 56-65), determining signal strength fluctuation associated with transmission from a second base station to obtain a second result (the signal strength of transmitted

signals of at least one base station in neighboring cell is measured and the signal fluctuation is also calculated, see col. 2, lines 56-65), and combining the first and second results to obtain a hysteresis factor for handover (hysteresis value is calculated based on the fluctuation measure, see col. 2, lines 64-65).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Bringby et al with Kim et al and Senadji et al for the benefit of reducing oscillating handoffs and improving the network performance.

Regarding **claim 14**, as applied to claim 13, the combination of Kim et al, Senadji et al and Bringby et al discloses the claimed invention.

Kim et al and Senadji et al both fail to disclose except wherein determining signal strength fluctuation associated with transmission from the first base station comprises computing standard deviation of received signal strength associated with the transmission.

In the same field of endeavor, Bringby et al further discloses wherein determining signal strength fluctuation associated with transmission from the first base station comprises computing standard deviation of received signal strength associated with the transmission (fluctuation is calculated by applying standard deviation to at least one of the measured received signal strengths, see col. 2, lines 60-63).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Kim et al, Senadji et al and Bringby et al

for the benefit of setting the appropriate hysteresis levels for reducing oscillating handoffs.

Regarding **claim 15**, as applied to claim 14, the combination of Kim et al, Senadji et al and Bringby et al discloses the claimed invention.

Kim et al and Bringby et al both fail to disclose wherein computing standard deviation comprises: averaging measured signal strength associated with transmission from the second base station (see col. 2, lines 57-61) over a long interval to obtain a second long term average, averaging measured signal strength associated with transmission from the second base station over a short interval to obtain a second short term average, subtracting the second long term average from the second short term average to obtain a second intermediate result, and determining standard deviation of the second intermediate result.

Senadji et al, however, further discloses wherein computing standard deviation comprises: averaging measured signal strength associated with transmission from the second base station over a long interval to obtain a long term average (averaging the signal strength of signals sent form base station BS2 to MS, see fig. 2, p. 1772 paragraph 2), averaging measured signal strength associated with transmission from the second base station over a short interval to obtain a short term average (averaging the signal strength of signals sent form base station BS1 to MS, see fig. 2, p. 1772 paragraph 2), subtracting the long term average from the short term average to obtain an intermediate result (calculated difference between the signal strengths given by equations 1, 2, and 3, see p. 2, fig. 2 and fig. 3 paragraphs 2-3), and determining standard

deviation of the intermediate result (calculated difference z_k is determined to have a standard deviation, see p. 1773, paragraph 1).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Kim et al, Senadji et al and Bringby et al for the benefit of calculating an optimal hysteresis value.

Regarding **claim 16**, as applied to claim 15, Kim et al, as modified by Senadji et al and Bringby et al discloses the claimed invention.

Kim et al and Senadji both fail to disclose wherein the standard deviation is recursively determined over a span of transmission samples from the first base station.

Bringby et al, however, further discloses wherein the standard deviation is recursively determined over a span of transmission samples from the first base station (on the downlink signal strength measurements are made by the serving BS on data transmitted in any of the times slots TS1 and TS4 at regular intervals, and a measure of the fluctuation of the received strength of the signal is measured by applying standard deviation, see fig. 4, col. 2, lines 61-65, and col. 4, lines 1-7).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Kim et al, Senadji et al, Bringby et al, and Senadji et al for the benefit of obtaining optimal hysteresis levels.

Regarding **claim 19**, as applied to claim 15, the combination of Kim et al, Bringby et al and Senadji et al disclose the claimed invention.

Kim et al and Bringby et al both fail to disclose wherein the intermediate result is a function of a delay factor that depends on a first averaging window for the long term average and a second averaging window short term average.

Senadji et al, however, inherently teaches wherein the intermediate result (Z_k, see p. 1772, paragraph 2) is a function of a delay factor that depends on a first averaging window for the long term average and a second averaging window short term average (Z_k is computed from the average signal strengths y^1_k and y^2_k, hence the intermediate result is a function of a delay factor because averaging of the signals introduces a delay response, see p. 1772, paragraph 2-3).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Kim et al, Senadji et al and Bringby et al for the benefit of reducing Rayleigh fading.

Regarding **claim 20**, as applied to claim 19, the combination of Kim et al, Bringby et al and Senadji et al disclose the claimed invention.

Kim et al and Bringby et al both fail to disclose wherein the first and second averaging windows each have a fixed window length.

Senadji et al, however, further discloses the limitation of claim 19, in which Senadji et al inherently teaches wherein the first and second averaging windows each have a fixed window length (the average of the received signals y^1_k and y^2_k are proportional to the average window length, therefore the fixed

window length is D-d and d which are the distances of BS1 and BS2 from MS, see fig. 2, p. 1772, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Kim et al, Senadji et al and Bringby et al for the benefit of reducing Rayleigh fading.

9. Claims 17, 18, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kim et al (20040053615)** in view of **Senadji et al "*Estimation of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** and **Bringby et al (6,285883)** as applied to claim 16 above, and further in view of **Eiselt** "***Limits on WDM Systems Due to Four-Wave Mixing: A statistical Approach***".

Regarding **claim 17**, as applied to claim 16, the combination of Kim et al, Senadji et al and Bringby et al, et al discloses the claimed invention except disclose wherein determining the standard deviation includes using a memory factor for weighting.

In the same field of endeavor Eiselt inherently teaches wherein determining the standard deviation includes using a memory factor for weighting (standard deviation is obtained form the variance in equation 13 and the degeneracy factor of the mixing product, see p. 2262, paragraph 2, and p. 2264, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Eiselt into the system of Kim et al, Senadji et al

and Bringby et al for the benefit of obtaining any desired mathematical result such as standard deviation.

Regarding **claim 18**, as applied to claim 17, the combination of Kim et al, Senadji et al, Bringby et al and Eiselt discloses the claimed invention.

The combination of Kim et al, Senadji et al, Bringby et al and Eiselt further discloses the limitation of claim 18, in which Eiselt inherently teaches wherein the memory factor is selected to provide exponential weighing (the degeneracy factor D_{pqr} can be obtained based on a given set p, q, r of parameters, see p. 2262, paragraph 2, and p. 2264, paragraph 3).

It would therefore have been obvious to one of ordinary skill in the art to further modify the combination of Kim et al, Senadji et al, Bringby et al, and Eiselt to further include the degeneracy factor to achieve the desired mathematical result such as standard deviation.

Regarding **claim 23**, as applied to claim 18, the combination of Kim et al, Senadji et al, Bringby et al, and Eiselt disclose the claimed invention.

The combination of Kim et al, Senadji et al, Bringby et al, and Eiselt further discloses the limitation of claim 23, wherein Eiselt inherently teaches including a memory factor in the standard deviation (degeneracy factor D is varied depending on the dispersion, and D is included in the standard deviation equation see p. 2262, paragraph 2, p. 2264, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to use the teaching of Eiselt in the combination of Kim et al, Senadji et al,

Bringby et al, and Eiselt order to achieve any desired mathematical result such as standard deviation.

10. Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kim et al (20040053615)** in view of **Senadji et al "*Estimation of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** and **Bringby et al (6,285883)** as applied to claim 13 above, and further in view of **Bringby et al (6,175,745)**.

Regarding **claim 21**, as applied to claim 13, Kim et al, as modified by Senadji et al and Bringby et al disclose the claimed invention.

The combination of Kim et al, Senadji et al and Bringby et al fail to disclose wherein combining the first and second results involves adding them together and multiplying them by a scaling factor.

In the same field of endeavor, Bringby et al (6,175,745) teaches the use of a formula for determining pathloss which involve combining a first and second result and multiplying them by a scaling factor (cumulative pathloss is determined by adding the uplink and downlink pathloss and multiplying them by weighing values "a" and "b", see col. 5, lines 44-57), and since hysteresis is related to the pathloss, it would have been obvious to one of ordinary skill in the art use the teaching of Bringby et al (6,175,745) in the combination of Kim et al, Senadji et al and Bringby et al in order to achieve any desired mathematical result such as determining hysteresis or pathloss subject to system or circuit constraints.

Regarding **claim 24**, as applied to claim 21, the combination of Kim et al, Senadji et al, Bringby et al (6,285,883) and Bringby et al (6,175,745) disclose the claimed invention.

The combination of Kim et al, Bringby et al (6,285,883) and Bringby et al (6,175,745) further discloses the limitation of claim 24, wherein Bringby et al (6,175,744) inherently teaches wherein the scaling factor is in the range of 1.5 to 2 (the values of a and b used to calculate pathloss are chosen based on the accuracy of signal strength measurement made by the mobile and base station, and the estimate of pathloss required, see col. 5, lines 56-67, col. 6, lines 1-2, 25-32), and since hysteresis is related to the pathloss, it would therefore have been obvious to one of ordinary skill in the art use the teaching of Bringby et al (6,175,745) in order to achieve any desired mathematical result such as determining hysteresis or pathloss subject to system or circuit constraints.

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kim et al (20040053615)** in view of **Senadji et al "*Estimation of the Hysteresis Value for Handover Decision Algorithms using Bayes Criterion*"** and **Bringby et al (6,285883)** as applied to claim 13 above, and further in view of **Min-hua et al "*The mobile IP Handoff Between Hybrid Networks*"**.

Regarding **claim 22**, as applied to claim 13, Kim et al as modified by Senadji et al and Bringby et al discloses the claimed invention except wherein the method further comprises: calculating a handover cost function as a function of the hysteresis factor, selecting a base station based on the handover cost function.

In the same field of endeavor, Min-hua et al discloses calculating a handover cost function as a function of the hysteresis factor (the algorithm for mobile IP handoff includes adding the received signal strength RSS of the old base station to the hysteresis margin and comparing the results to the RSS of a new base station, see p. 267, col. 2, paragraph 2), selecting a base station based on the handover cost function (handoff is decided if $RSS_{new} > RSS_{old} + H$, see p. 267, col. 2, paragraph 2).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Min-hua into the system of Kim et al, Senadji et al and Bringby et al for the benefit of reducing handoff delay, packet loss and the ping-pong effect.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Muller (6,498,934) discloses channel allocation using enhanced pathloss estimates.

Shah et al (6,745,033) discloses a method of optimizing hysteresis values in a cellular telecommunications network.

Holtzman et al discloses Rayleigh fading effect reduction with wideband DS/CDMA signals.

Wang et al (20020082012) discloses an apparatus and associated method for adaptively selecting a handoff threshold in a radio communication system.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olumide T. Ajibade-Akonai whose telephone number is 571-272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OA

CHARLES APPIAH
PRIMARY EXAMINER